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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,353	12/21/2001	Sumio Kawai	SAS2-PT044	6450

3624 7590 06/02/2005

VOLPE AND KOENIG, P.C.  
UNITED PLAZA, SUITE 1600  
30 SOUTH 17TH STREET  
PHILADELPHIA, PA 19103

EXAMINER
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HERNANDEZ, NELSON D

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/037,353	KAWAI, SUMIO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Nelson D. Hernandez	2612	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 17 March 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,2 and 4-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-6 and 9 is/are rejected.
- 7) ☒ Claim(s) 7 and 8 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                    |                                                                             |
|----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____                                                |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/17/05 &amp; 11/26/04</u>                                                | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 6** recites the limitation "The dust camera according to claim 4, wherein the piezoelectric bodies include ..." in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. For examining purposes the claim will be read as dependent from claim 5, since the limitation of having a piezoelectric is mentioned in claim 5 and not in claim 4.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **1, 2, 4, 5 and 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Akio, JP 07-151946 in view of Shaw, 4,441,796.

**Regarding claim 1**, Akio discloses a dust removal camera (See fig. 1) comprising: an image pickup optical system (Fig. 1: 3), which forms an optical image of an object; a photoelectric converting device (Fig. 1: 5) which converts the optical image

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to an electric signal; an optical device (Fig. 1: 2) disposed in the front of the image pickup optical system; and a vibration applying section (Fig. 1: 15) which generates a supersonic vibration on a surface of the optical device to remove dust adhered to the surface of the optical device (See translation, page 2, ¶ 0008; page 3, ¶ 0009-0013; page 4, ¶ 0016-0020; page 5, ¶ 0022) but does not explicitly disclose that the optical device is disposed between the image pickup optical system and the photoelectric converting device and that the vibration applying section generates at least one of a standing wave and a progressive wave.

However, Shaw teaches an optical device (Fig. 3: 44) for removing dust from the photosensitive element (Fig. 3: 42) of a camera or a projector, wherein said optical device for removing dust is disposed between the photosensitive element and the lens (Fig. 3: 62), and wherein a vibration transducer (Fig. 11: 234) for vibrating the optical device for removing dust generates a standing wave (See col. 10, lines 11-19) on a surface of the optical device to remove dust adhered to the surface of the optical device. (Col. 1, lines 6-12; col. 3, lines 38-59; col. 4, lines 29-61; col. 10, lines 11-19 and 44-53).

Therefore, taking the combined teaching of Akio in view of Shaw as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Akio by disposing the optical device for removing dust between the photosensitive element and the lens and having the vibration applying section generating a standing wave on a surface of the optical device to remove dust adhered to the surface of the optical device. The motivation to do so would help the camera to

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avoid adhesion of dust on the photoelectric converting device as suggested by Shaw (Col. 2, lines 37-43).

**Regarding claim 2**, the combined teaching of Akio in view of Shaw as applied to claim 1 teaches a holding member (See Shaw, figs. 1: 50 and 2: 50; also camera case 1 shown in fig.1 in Akio provide seal between the optical device 2 and the photoelectric converting device 5), which provides seal between the optical device and the photoelectric converting device (Seals element shown in figs. 2: 52 and 2: 54 in Shaw) (Shaw, col. 4, lines 29-61; Akio Translation, page 2, ¶ 0008; page 3, ¶ 0009-0013; page 4, ¶ 0016-0020).

**Regarding claim 4**, the combined teaching of Akio in view of Shaw as applied to claim 2 teaches that the holding member includes one or more supporting bodies which support the optical device outside of an image formation light ray passing-through area of the optical device (The barrel shown in fig. 1 in Akio supports the optical device outside of an image formation light ray passing through area, a support body for the lens and for the optical device is inherent in Akio) (See Akio translation, page 2, ¶ 0008; page 3, ¶ 0009-0013; page 4, ¶ 0016-0020; page 5, ¶ 0022).

**Regarding claim 5**, the combined teaching of Akio in view of Shaw as applied to claim 1 teaches that the vibration applying section includes piezoelectric bodies (In Shaw, the vibration applying section comprises piezoelectric material) fixed outside of an image formation light ray passing-through area of the optical device (See Shaw, col. 10, lines 9-53).

**Regarding claim 9**, Akio discloses a dust removal camera (See fig. 1) comprising: an image pickup optical system (Fig. 1: 3), which forms an optical image of an object; a photoelectric converting device (Fig. 1: 5) which converts the optical image to an electric signal; a holding member which holds the photoelectric converting device and has an opening portion which guides lights from the image pickup optical system to the photoelectric converting device (The barrel shown in fig. 1 supports the photoelectric converting device 5, holding member is inherent in Akio to secure the photoelectric converting device); an optical device (Fig. 1: 2) which covers the opening portion and seals the photoelectric converting device (The barrel of the camera provides seal between the optical device 2 and the photoelectric converting device 5); and a vibration applying section (Fig. 1: 15) which generates a supersonic vibration on a surface of the optical device to remove dust adhered to a surface of the optical device (See translation , page 2, ¶ 0008; page 3, ¶ 0009-0013; page 4, ¶ 0016-0020; page 5, ¶ 0022) but does not explicitly disclose that the vibration applying means generates at least one of a standing wave and a progressive wave and that the optical device being attached to the holding member in a vicinity of a node of the vibration generated by the vibration applying section.

However, Shaw teaches an optical device (Fig. 3: 44) for removing dust from the photosensitive element (Fig. 3: 42) of a camera or a projector, wherein said optical device for removing dust is disposed between the photosensitive element and the lens (Fig. 3: 62), and wherein a vibration transducer (Fig. 11: 234) for vibrating the optical device for removing dust generates a standing wave (See col. 10, lines 11-19) on a

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surface of the optical device to remove dust adhered to the surface of the optical device, also teaches a holding member (Figs. 1: 50 and 2: 50), which provides seal between the optical device and the photoelectric converting device (Seals element shown in figs. 2: 52 and 2: 54 in Shaw), wherein the optical device is attached to the holding member in a vicinity of a node of the vibration generated by the vibration applying section (See optical device 44 attached to holding member 50 in a vicinity of a node of the vibration generated by the vibration applying section 234) (Col. 1, lines 6-12; col. 3, lines 38-59; col. 4, lines 29-61; col. 10, lines 11-19 and 44-53).

Therefore, taking the combined teaching of Akio in view of Shaw as a whole, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Akio by having the optical device attached to the holding member in a vicinity of a node of the vibration generated by the vibration applying section and having the vibration applying section generating a standing wave on a surface of the optical device to remove dust adhered to the surface of the optical device. The motivation to do so would help the camera to avoid adhesion of dust on the photoelectric converting device as suggested by Shaw (Col. 2, lines 37-43).

### ***Allowable Subject Matter***

6. **Claim 6-8** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter:

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Regarding **claim 6**, the main reason for indication of allowable subject matter is because the prior art fails to teach or reasonably suggest that the piezoelectric bodies include laminated piezoelectric bodies laminated on a surface of the optical device outside of an image formation light ray passing-through area of the optical device.

### ***Conclusion***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### ***Contact***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nelson D. Hernandez whose telephone number is (571) 272-7311. The examiner can normally be reached on 8:00 A.M. to 5:30 P.M..



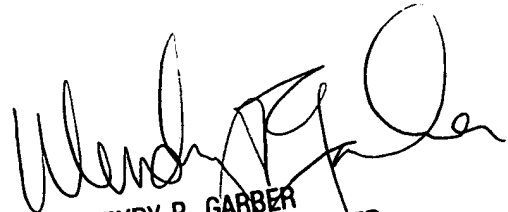
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R. Garber can be reached on (571) 272-7308. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nelson D. Hernandez  
Examiner  
Art Unit 2612

NDHH  
May 16, 2005

  
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